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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,769	11/09/2000	Thomas Gebele	HER07 P-107	5666

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EXAMINER

HASSANZADEH, PARVIZ

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 12/30/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/710,769

Applicant(s)

GEBELE ET AL.

Examiner

Parviz Hassanzadeh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 7-10,18,19,24 and 28-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,11-17,20-23 and 25-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 11 December 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *approved drawing corrections*.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Species 1 of apparatus, in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the apparatus as claimed can not be used for plasma cleaning of a substrate. This is not found persuasive because the claimed apparatus structurally is capable of being used in a process other than coating, for example, if the cathode material is a cleaning material the process of coating the cleaning material will chemically clean the surface of the substrate and thus can be used for cleaning the surface of a substrate. Further the election fails to identify claims corresponding to non-elected species 2-4.

The requirement is still deemed proper and is therefore made FINAL.

Claims 7-10, 18-19, 24 and 28-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species and method, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 12/11/02 have been approved by the Examiner. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "1c" in Fig. 5 cited on page 9, line 28; "25c" in Fig. 5 cited on page 10, lines 1, 3, 4, 7, 8. A proposed drawing

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correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-6, 11, 12, 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: in claim 2, a baffle arrangement is required to define the evaporation-active part exposed to a plasma and the evaporation-inactive part shaded from plasma.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 13, 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Akamatsu et al (JP 11-100661 A).

Akamatsu et al teach a *plasma coating apparatus* (Fig. 1) for plasma-aided coating of a substrate 10 with a layer, the apparatus comprising:

an anode part 3 including a vapor deposition material 6 (*an anode arrangement which defines the first material component at an anode material surface for evaporation*); and

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a cathode part 2 (*baffle arrangement*) including a cathode 5 (*a cathode arrangement which defines the second material component at a cathode material surface*) disposed inside the cathode part 2 wherein as shown in Fig. 1, a front portion of part 5 is exposed to the plasma 4 (*wherein the cathode material surface is constituted by an evaporation-active part supporting the plasma discharge*);

a gas introducing tube 13 supplying a gas at the front portion of the cathode 5 (*a gas supply for supplying protective gas in front of the cathode material surface to the evaporation-active part of the cathode material surface*); and

wherein the remaining portion of part 2 (*baffle arrangement*) including the back-side and the bottom-side and the upper-side of the part 5 are not exposed to plasma 4 (*and an evaporation-inactive part not supporting the plasma discharge*) (Abstract and paragraph 0018-0024).

Regarding claims 13, 14: The apparatus also includes a gas introducing tube 13 supplying a gas at the front portion of the cathode 5.

Regarding claim 17: The plasma 4 is an arc discharge plasma produced by the anode part 2 and cathode part 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akamatsu et al (JP 11-100661 A) in view of Klaus et al (WO 00/46418).

Akamatsu et al teach all limitations of the claims as discussed above except for the anode arrangement including a heat-able crucible; the first material component comprising silicon; and the second material component comprising one of copper, zinc, brass and magnesium.

Klaus et al teach an anodic crucible 5 including a heater 7 heating the crucible 5 (abstract and Fig. 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the heater as taught by Klaus et al in the apparatus of Akamatsu et al in order to heat the crucible.

Regarding claims 26, 27: The particular type of material used is a process limitation rather than an apparatus limitation, and the recitation of a particular type of material does not limit an apparatus claim, see *In re Casey*, 152 USPQ 235; *In re Rishoi*, 94 USPQ 71; *In re Young*, 25 USPQ 69; *In re Dulberg*, 129 USPQ 348; *Ex parte Thibault*, 64 USPQ 666; and *Ex parte Masham*, 2 USPQ2d 1647. This rejection is based on the fact the apparatus structure taught

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by Akamatsu et al has the inherent capability of being used in the manner intended by the Applicant. When a rejection is based on the inherency, a rejection under 35 U.S.C. 102 or U.S.C. 103 is appropriate. (See *In re Fitzgerald* 205 USPQ 594 or MPEP 2112).

Allowable Subject Matter

Claims 3-6, 11, 12, 15, 16 and 20-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

It is suggested to include the limitation of claim 3 in the independent claim 2. It is also suggested to include the motion-producing device as cited in claims 2 into claim 1 in order to overcome the rejection under 35 U.S. C. 102(b).

The following is a statement of reasons for the indication of allowable subject matter: a plasma-arc coating apparatus comprising:

an anode arrangement supporting a first material to be evaporated; and a cathode arrangement defining a second material surface, wherein the cathode material surface having an evaporation-active portion supporting a plasma discharge and an evaporation-inactive portion not supporting the plasma discharge;

a baffle arrangement exposing the evaporation-active part at a baffle opening for the plasma discharge and shading of the evaporation-inactive part correspondingly from the plasma discharge; and

a motion-producing device moving the cathode material surface such that evaporation-active portion is moved away from the plasma and the evaporation-inactive portion is moved in

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to support the plasma and thus deposit of material due to the first material component on the cathode material surface is reduced.

Response to Arguments

Applicant's arguments filed 12/11/02 have been fully considered but they are not persuasive.

The Applicants assert that Akamatsu et al does not teach gas supply supplying gas to the evaporation-active part of the cathode material surface for avoiding the covering of the cathode by impurities.

The Examiner argues that the gas supply line 13 of Akamatsu et al supplies gas in front of the surface of the cathode 5 and thus preventing impurities depositing on the surface of the cathode 5.

The Applicants further assert that Akamatsu et al does not teach a shading arrangement of the evaporation-inactive part of the cathode.

The Examiner argues that the cathode part 2 is a baffle arrangement shading the entire cathode 5 except for the front part of the cathode.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gruen (US Patent No. 5,015,493) teach a coating apparatus including an anodic evaporation source 11 and a substrate cathode 5(Fig. 2);

Harano et al (US Patent No. 5,009,922) teach a coating apparatus including an anode 4 having a vapor deposition material 3, a cathode 1 for an arc discharge generating plasma and a vapor deposition substrate 6 (Fig. 1);

Temple et al (US Patent No. 4,868,003) teach a crucible 30 heated by an electron gun 31, a plasma source 32, and a substrate holder system 41; and

Scheffel et al (WO 98/58095) teach a coating apparatus including an anodic crucible 7, a cathode 9, and a vapor deposition substrate 1, wherein the cathode 9 is moved into an area where the vapor is denser and this part of the cathode is heated.


The present invention is also disclosed by *Gebele et al in JP-2001-192815-A and EP-1103630-A1*.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parviz Hassanzadeh whose telephone number is (703)308-2050. The examiner can normally be reached on Tuesday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on (703)308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.


Parviz Hassanzadeh
Examiner
Art Unit 1763

December 27, 2002